Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of treating an individual suffering from a cancer ~~characterized by~~ wherein cancer cells ~~showing~~ show alternative lengthening of telomeres, the method comprising administering to the individual a therapeutically effective amount of a composition comprising an inhibitor or antagonist of a reverse transcriptase, which reverse transcriptase is encoded by L-1 (LINE-1) retrotransposon and which is involved in said lengthening of telomeres in said cells of the individual, wherein the inhibitor or antagonist blocks said lengthening of telomeres, wherein the inhibitor or antagonist is a nucleoside analog that is at least one selected from the group consisting of: 3'-azido-2',3'-dideoxythymidine (AZT), 2',3'-dideoxyinosine (ddI) [[or]] and 2',3'-didehydro-3'-deoxythymidine (d4T).

2. (currently amended) The method of claim 1, wherein the ~~inhibitor or antagonist of the reverse transcriptase comprises an antisense sequence, an inorganic compound, an organic compound, a peptide or a small molecule~~ nucleoside analog is ddI.

3. (withdrawn) The method of claim 1, wherein the antisense sequence is capable of hybridizing with a nucleic acid encoding the reverse transcriptase.

4. (canceled)

5. (withdrawn) The method of claim 1, wherein the antisense sequence comprises a chimeric RNA-DNA oligonucleotide.

6. (currently amended) The method of claim [[2]] 1, wherein the ~~organic compound is a~~ nucleoside analog is d4T.

7. (currently amended) The method of claim [[6]] 1, wherein the nucleoside analog is 3'-azido-2',3'-dideoxythymidine (AZT).

8. (original) The method of claim 1, wherein the cancer is osteosarcoma, breast carcinoma, ovarian carcinoma, lung carcinoma, adrenocortical carcinoma or melanoma.

9. (original) The method of claim 1, wherein the composition is administered orally, parenterally, subcutaneously, intramuscularly, intravascularly or topically.

10. (currently amended) A method for treating a cancer in a human, wherein ~~the~~ cancer ~~is due to~~ cells ~~showing~~ show alternative lengthening of telomeres ~~induced or mediated by~~ and L-1 (LINE-1) retrotransposon encoded reverse transcriptase activity ~~in said cells of the human~~, the method comprising administering a therapeutically effective amount of a composition comprising one or more nucleoside analogs, or a pharmaceutically acceptable salt thereof, to the human suffering from the cancer, wherein said nucleoside analogs block said lengthening of telomeres, wherein said nucleoside analogs are 3'-azido-2',3'-dideoxythymidine (AZT), 2',3'-dideoxyinosine (ddI) and 2',3'-didehydro-3'-deoxythymidine (d4T).

11. (previously presented) The method of claim 10, wherein said nucleoside analogs are selected from the group consisting of: 3'-azido-2',3'-dideoxythymidine (AZT) and 2',3'-dideoxyinosine (ddI).

12. (original) The method of claim 10, wherein the cancer is osteosarcoma, breast carcinoma, ovarian carcinoma, lung carcinoma, adrenocortical carcinoma or melanoma.

13. (original) The method of claim 10, wherein the composition is administered orally, parenterally, subcutaneously, intramuscularly or intravascularly.

14. (original) The method of claim 10, wherein a composition comprising two or

more said nucleoside analogs are administered.

15. (original) The method of claim 10, wherein the one of said nucleoside analogs administered is from about 100 mg/kg of body weight to about 500 mg/kg of body weight per day.

16. (currently amended) A method of interfering with lengthening of telomeres in telomerase negative tumor cells, the method comprising administering to the cells an effective amount of an inhibitor or antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon in the cells wherein the inhibitor or antagonist blocks said lengthening of telomeres, wherein the ~~organic compound~~ inhibitor or antagonist is a nucleoside analog, which is 3'-azido-2',3'-dideoxythymidine (AZT), 2',3'-dideoxyinosine (ddI) or 2',3'-didehydro-3'-deoxythymidine (d4T).

17. (currently amended) The method of claim 16, wherein the ~~inhibitor or antagonist of the reverse transcriptase comprises an antisense sequence, an inorganic compound, an organic compound, a peptide or a small molecule~~ nucleoside analog is ddI.

18. (withdrawn) The method of claim 16, wherein the antisense sequence is capable of hybridizing with a nucleic acid encoding the reverse transcriptase.

19. (canceled)

20. (withdrawn) The method of claim 16, wherein the antisense sequence comprises a chimeric RNA-DNA oligonucleotide.

21. (currently amended) The method of claim [[17]] 16, wherein the ~~organic compound is a~~ nucleoside analog is d4T.

22. (currently amended) The method of claim [[21]] 16, wherein the nucleoside

analog is 3'-azido-2',3'-dideoxythymidine (AZT)~~, 2',3'-dideoxyinosine (ddI) or 2',3'-didehydro-3'-deoxythymidine (d4T)~~.

23. (previously presented) The method of claim 16, wherein said tumor cells are osteosarcoma, breast carcinoma, ovarian carcinoma, lung carcinoma, adrenocortical carcinoma or melanoma.

24. (currently amended) A method of preventing or inhibiting the growth of a telomerase negative cell showing alternative lengthening of telomeres, the method comprising:

contacting the cell with a nucleoside analog, wherein the nucleoside analog blocks said lengthening of telomeres, wherein the nucleoside analog is 3'-azido-2',3'-dideoxythymidine (AZT), 2',3'-dideoxyinosine (ddI) or 2',3'-didehydro-3'-deoxythymidine (d4T); ~~or~~

~~transfecting the cell with a construct capable of expressing human L1RT antisense sequence that is substantially or fully complementary to a subsequence of a nucleic acid necessary for encoding L1RT enzyme~~.

25. (currently amended) The method of claim 24, wherein the cell is contacted with ~~a nucleoside analog at a concentration of 0.2 μM~~ AZT.

26. (currently amended) The method of claim [[24]] 25, wherein the ~~nucleic acid is an mRNA~~ cell is contacted with 0.2 μM AZT.

27. (currently amended) The method of claim 24, wherein the ~~nucleic acid is a human L1RT open reading frame~~ cell is contacted with ddI.

28. (canceled)

29. (currently amended) The method of claim 24, wherein the ~~nucleoside analog is 3'-azido-2',3'-dideoxythymidine (AZT)~~ cell is contacted with d4T.

30. (withdrawn) The method of claim 24, wherein the antisense sequence is a DNA oligonucleotide, a 2'-O methyl oligonucleotide, a peptide nucleic acid oligonucleotide or a phosphorothioate oligonucleotide.

31. (withdrawn) The method of claim 30, wherein the antisense L1RT nucleic acid has the nucleotide sequence comprising SEQ ID NO:1.

32. (withdrawn) The method of claim 24, wherein the antisense sequence is about 8 to about 50 nucleotides in length.

33. (withdrawn) The method of claim 32, wherein the antisense sequence is about 15 to about 25 nucleotides in length.

34. (withdrawn) The method of claim 24, wherein the cell is contacted with two or more antisense sequences fully complementary to different subsequences of the nucleic acid.

35. (withdrawn) The method of claim 24, wherein the antisense sequence is part of a ribozyme.

36. (original) The method of claim 24, wherein the telomerase negative cell is a cancer cell, wherein the cancer cell is selected from the group consisting of osteosarcoma, breast carcinoma, ovarian carcinoma, lung carcinoma, adrenocortical carcinoma or melanoma.

37. (currently amended) A method for interfering with L1RT activity in a system comprising providing to the system, showing alternative lengthening of telomeres induced or mediated by L1RT activity, an amount of a nucleoside analog, wherein the nucleoside analog blocks said lengthening of telomeres, wherein the nucleoside analog is 3'-azido-2',3'-dideoxythymidine (AZT), 2',3'-dideoxyinosine (ddI) or 2',3'-didehydro-3'-deoxythymidine (d4T) ~~or an antisense compound~~ effective to interfere with L1RT activity in the system, wherein the system is a cell growing in vitro or in vivo.

38. (previously presented) The method of claim 37, wherein the nucleoside analog is 3'-azido-2',3'-dideoxythymidine (AZT).

39-40. (canceled)

41. (withdrawn) A composition comprising: a polynucleotide capable of encoding a nucleic acid segment capable of interfering with L-1 (LINE-1) retrotransposon activity in cells.

42. (withdrawn) The composition of claim 41, wherein the nucleic acid segment comprises SEQ ID NO:1.

43. (withdrawn) An isolated host cell comprising the composition of claim 41.

44. (withdrawn) The isolated cell of claim 41, wherein the cell is human cell.

45. (withdrawn) The isolated cell of claim 41, wherein the cell is a cancer cell.

46. (withdrawn) A method of selecting a compound capable of shortening telomeres in telomerase negative cancer cells, the method comprising:

administering a test compound to said cells;

evaluating anti-L-1 (LINE-1) retrotransposon activity of the test compound or evaluating whether the compound down-regulates expression of reverse transcriptase encoded by L-1 retrotransposon in said cells; and

selecting the compound that exhibits anti-L-1 retrotransposon activity down-regulates the reverse transcriptase expression.

47. (withdrawn) The method of claim 46, wherein the step of evaluating comprises testing for telomere shortening or G2 arrest in said cells or apoptosis of said cells.

48. (withdrawn) The method of claim 46, wherein said cells are either in vitro cultured cells or in a non-human animal model.

49. (withdrawn) The method of claim 46, wherein the animal model is selected from the group consisting of a rat, a rabbit, a pig, a cow, a monkey and a guinea pig.

50. (withdrawn) A method of detecting presence of cancerous cells in a cell sample that is telomerase negative, the method comprising:

contacting said sample with an inhibitor or antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon; and

testing for cells exhibiting telomere shortening or G2 arrest in said cells or apoptosis of said cells.

51. (withdrawn) A method of detecting cells capable of pathologically proliferating in a tissue of a mammal, comprising:

obtaining a sample of cells from the tissue

contacting the sample of cells with a nucleic acid probe that is substantially complementary or fully complementary to a subsequence of an L1RT mRNA, or an antibody specific to L1RT reverse transcriptase; and

detecting L1RT expression in said cells.

52. (withdrawn) The method of claim 51, wherein the nucleic acid probe comprises a detectable moiety.

53. (withdrawn) The method of claim 52, wherein the detectable moiety is a radioisotope, a fluorescent molecule, biotin or digoxigenin.

54. (withdrawn) The method of claim 51, wherein the nucleic acid probe comprises a sequence selected from the group consisting of: 5'-CCA GAG ATT CTG GTA TGT GGT GTC TTT GTT-3' (SEQ ID NO:2), 5'-CTT TCT CTT GTA GGC ATT TAG TGC TAT AAA-

3'(SEQ ID NO:3), 5'-CTC TTG CTT TTC TAG TTC TTT TAA TTG TGA-3' (SEQ ID NO:4), 5'-CTT CAG TTC TGC TCT GAT TTT AGT TAT TTC-3' (SEQ ID NO:5) and 5'- TCC TGC TTT CTC TTG TAG GCA -3' (SEQ ID NO:6).

55. (withdrawn) A kit for detecting pathologically proliferating cells comprising a nucleic acid probe that is substantially or fully complementary to a subsequence of an L1RT mRNA.

56. (withdrawn) The kit of claim 55, wherein the nucleic acid probe comprises a detectable moiety.

57. (withdrawn) The kit of claim 56, wherein the detectable moiety is a radioisotope, a fluorescent molecule, biotin or digoxigenin.

58. (withdrawn) The kit of claim 55, wherein the nucleic acid probe comprises a sequence selected from the group consisting of: 5'-CCA GAG ATT CTG GTA TGT GGT GTC TTT GTT-3' (SEQ ID NO:2), 5'-CTT TCT CTT GTA GGC ATT TAG TGC TAT AAA-3'(SEQ ID NO:3), 5'-CTC TTG CTT TTC TAG TTC TTT TAA TTG TGA-3' (SEQ ID NO:4), 5'-CTT CAG TTC TGC TCT GAT TTT AGT TAT TTC-3' (SEQ ID NO:5) and 5'- TCC TGC TTT CTC TTG TAG GCA -3' (SEQ ID NO:6).